

15.0 RECOMMENDATION

The recommendation for the US 27 to I-75 Corridor Scoping Study is Alternative Corridor 5-2. This alternative corridor was selected as the recommendation over the other alternative corridors and the no-build option for the following reasons:

- Good connectivity with KY 3055 / KY 627 interchange.
- Most public support of all alternatives.
- No known impacts to Environmental Justice areas.
- Fewer impacts to floodplains and historic sites than the similar Alternative Corridor 4-2.
- Crosses the faults in the area more perpendicular (better) than Alternative Corridor 4-2.
- Has the lowest cost of a two-lane alternative (\$181 - \$245 million)

Generally, it was agreed upon by the project development team and the project work group that the terminus point on I-75 at the KY 3055 / KY 627 (Boonesboro exit) makes the most sense as there is currently an interchange at this location and provides good potential for regional connectivity beyond I-75. In the west, it was decided that a connection to the proposed Eastern Nicholasville Bypass would be more advantageous on the northern side of Nicholasville as opposed to the southern side. The northern locations (Locations 4 and 5) are expected to attract more traffic and thus increase the potential revenue, utilizing tolling as a funding mechanism. When comparing locations 4 and 5, location 5 had more advantages, assuming the Eastern Nicholasville Bypass is built. If the bypass is not constructed prior to the further development of this project, shifting the western termini point to Location 4 may be beneficial to connect to US 27 in the shortest path possible. Although this may add to the projects costs.

With cost constraints a major concern for this project, a two-lane rural typical section with wide shoulders and alternating passing lanes is recommended for the initial construction phase. Right-of-way should be purchased at the outset of this project for the possibility of a future four-lane section. While analysis has shown that traffic operations of a two-lane section will fail by the year 2017, the failure is related to the lack of passing opportunities. By providing alternating passing lanes, the traffic operations of the highway should remain at an adequate level beyond 2017.

Funding the project is a challenge given limited current resources, and as such it is proposed based on initial analysis in this document that the roadway will be tolled. The general analysis performed in this report indicated that a two-lane roadway could be paid for within a thirty-year bond period by tolls, assuming \$1.00 for cars and \$2.00 for trucks. This revenue might actually be higher in reality as it is likely trucks will be charged a higher price. Currently, Kentucky does not have any toll roads in operation. However, they do have a toll authority in place which could be a sufficient enabling mechanism to manage the collection system and take on the legal authority for project development, construction and operations. Generally, the new highway is expected to

have limited access, with an interchange at US 27, I-75, and possibly two others in the middle at major crossings / interchanges. Limiting access is important to keep the route free-flowing as much as possible. It was also discussed that in order to keep the facility functioning as a true connector, that development should occur along frontage roads that tie into the major crossings and not the connector itself. The exact location of the interchanges and tolling collection logistics and methodology will require additional study beyond this project.

Another component of this project is a ten-foot multi-use path in conjunction with the new roadway. Additional study will be required for the path, including consideration of logical termini points, proximity of it to the roadway and the method for crossing the Kentucky River. It may be possible to deviate from the new highway corridor and use portions of the Rhiney B abandoned railroad bed, including a river crossing on the old alignment. These decisions are to be made in a future design phase of the project. Overall, there has been great demand for a path based on public survey response and discussion at the PWG. However, it was agreed by the PWG and PDT members that while desirable, the inclusion of the path should not limit the advancement of the entire new connector project.

15.1 Design Elements

The following design elements are assumed which form the basis for the cost estimate for the recommended alternative.

- Two 12-foot travel lanes (11-foot lanes could be considered as appropriate assuming 11-foot meets design speed criteria)
- 10-foot paved shoulders
- 300-foot right-of-way

For cost estimation purposes, passing lanes were assumed to occur in each of the three project sections, one in each direction, for approximately one mile in length. This equates to six miles of passing lanes, which is almost half of the entire corridor. The exact location and length of the passing lanes will be determined during the design phase of this project.

The right-of-way estimate was adjusted from the previous estimates as refinements have been made to each of the corridors and a more definitive typical section has been recommended. The estimate is wide enough to encompass an eventual four-lane typical section as well as a 10-foot multi-use path with sufficient buffer between the roadway and the path. Additional width is included for clear zone, with additional area included to compensate for the unknowns of cut and fill and slope requirements. Overall, the right-of-way estimate is conservative and can be refined during the design phase.

15.2 Design Issues

Of particular concern for this project is the western terminus with the proposed Eastern Nicholasville Bypass as well as the Kentucky River crossing. At the time of this report, the Eastern Nicholasville Bypass is in the Six Year Highway Plan and has design plans in the works for future construction. However, the actual completion of the project is uncertain. The current proposal for the recommended new US 27 to I-75 connector begins along the bypass and is therefore dependent on the completion of the bypass prior to construction of the connector. If the bypass is not completed, revisions to the design will need to be made to adjust the connection to US 27 just north of Nicholasville. The cost estimates provided below show the additional cost expected under this scenario in the footnote.

The Kentucky River crossing will require a new bridge, which forms a significant portion of the cost of this project. The bridge will go through an environmentally sensitive area (the Palisades), and care must be taken to ensure the least invasive river crossing is proposed. The intent of the project would be to showcase the Palisades and provide a tourism opportunity. It is expected that the Valley View Ferry will continue in operation and the new bridge should also be placed in such a location as to not impact the view shed or operations of the ferry. These are all considerations that will need to be taken into account during the future design phases of the project.

15.3 Cost Estimate

Final 2008 planning level cost estimates have been developed for the recommended alternative, based on the design elements discussed in the previous section (**Table 20**). The estimated construction costs, right-of-way, utility, and design are included. Mitigation costs were not prepared at this time. These cost estimates, in 2008 dollars, are for planning purposes only and are subject to further refinement during the design phase.

Table 20: Recommended Alternative Cost Estimate

Base Estimate* (Initial 2-Lane)	Right-of-Way (Includes Area Needed for Ultimate 4-Lane and Multi-Use Path)	Utilities	Limited Access* (4 Interchanges)	Total	Add-Ons		
						Multi-Use Path*	Passing Lanes*
\$168,000,000	\$7,000,000	\$3,000,000	\$23,000,000	\$201,000,000	cost:	\$41,000,000	\$22,000,000
					total with add-ons:	\$264,000,000	

*Includes Design and Construction

Notes:

1) If the Eastern Nicholasville Bypass is not in place prior to the development of this project, the estimate to construct the section of bypass from the proposed intersection with Corridor 5-2 to US 27 (including the interchange at US 27, right-of-way, and utilities) was \$61,000,000 in 2004 dollars. This also assumes a 4-lane section.

The costs in **Table 20** are presented such that depending on funding, specific components can be included as part of the total package or taken off to keep the project within a specific budget. Overall, for a limited access two-lane roadway with a multi-use path and passing lanes (including right-of-way and utilities) the total cost in 2008 dollars is \$264 million.

15.4 Right-of-Way and Utility Relocation Impact Assessment

General right-of-way impacts were assessed as part of the planning and evaluation stage for this project by the KYTC District 7 office. Revisions were made for the recommended Alternative Corridor 5-2 based on the estimated right-of-way required for the recommended typical section. With right-of-way for a future four-lane highway and a multi-use path on one side, an estimated 300 feet of right-of-way was determined. Using this estimate and the KYTC's cost per acre for right-of-way purchase as determined earlier in this study, a new right-of-way cost was developed specific to this alternative. With this estimate, right-of-way costs would be approximately \$7 million. This estimate (in 2008 dollars) can be used for planning purposes, but is subject to refinement during the design phase.

General utility relocation costs were also developed by the KYTC District 7 office. Given the general planning level of this document, these costs seemed to be adequate for this recommendation and as such were included in the final recommendation cost unadjusted.

15.5 Project Phasing

While ultimately it would be desired to construct the new facility in one stage, the lack of available funding may make that difficult. Therefore, a recommended phasing schedule is provided below to ensure the highest priority segments are completed first. It was decided that the most logical project sections are:

1. US 27 to KY 1981
2. KY 1981 to Bates Creek Road
3. Bates Creek Road to I-75

The prioritization for these segments is from west to east as indicated by the numbers above. Design could be completed for all segments at the same time with the phasing schedule implemented during construction.

15.6 Multimodal Facilities

There is strong support for a multi-use trail to be built next to the roadway. The cost of the trail is estimated at \$23 million dollars, in 2008 US dollars. Several potential alternative funding options have been discussed and further study of these options should be conducted. One option is to charge a toll for bicyclists using the path. Another option is to finance the construction of the path using tourism dollars. The current administration is looking for locations for new ATV, equestrian, mountain biking and hiking trails to promote "adventure tourism" in Kentucky. In an article in the Lexington Herald Leader on September 17, 2008 the columnist wrote about a week-long bicycle tour he participates in every summer in a different part of rural Virginia. According to the article over 2,000 people from across the country participate and hundreds of thousands of dollars are brought into the economy. The preferred

alternative would cross the Kentucky River and provide remarkable views of the Palisades, making a multi-use path in this location a potential for increased tourism and economic development to the area. With tourism funding as well as the option of collecting tolls from users of the path, it is recommended that a multi-use path be included in the design of the roadway, and creative funding mechanisms be used to pay for construction.

15.7 Intelligent Transportation Systems (ITS)

The role of Intelligent Transportation Systems (ITS) on this project is most applicable to toll demand management. If warranted, based on further study, a dynamic demand responsive system to price the roadway and collect tolls could be implemented. Such systems are currently in place in Southern California and are gaining in popularity as a way to manage congestion. The idea is fundamentally based on adjusting pricing depending on the time of day and vehicular volume. Generally higher tolls are charged during the peak hours with lower tolls charged during off-peak times. This methodology has the potential to increase revenue for paying for the roadway and alleviating congestion on portions of US 27 and I-75. Consistent travel times can also be managed for the new connector roadway, and this information passed on to motorists thereby improving travel time reliability.

15.8 Commitment Action Plan

KYTC is committed to incorporating appropriate pedestrian and bicycle facilities into all proposed highway projects. KYTC is also committed to working with KTC / SHPO as the project progresses to avoid, to the greatest extent possible, impacts to any identified existing and / or National Register eligible properties.

15.9 Next Steps / Implementation

Upon conclusion of this study, the next step would be to have the project recommendation listed in the next Six Year Highway Plan. Prioritization of roadway projects in the Commonwealth typically begin in the Spring of each year (the next opportunity is Spring 2009) for the next plan, therefore all representatives with input on the ranking of projects should be notified of this project, along with its proposed funding scenario.

While the KYTC is limited in its ability to purchase and reserve right-of-way for future unfunded projects, Jessamine and Madison County may be free to investigate ways to restrict development in the area of the proposed corridor through their own planning and zoning processes. This may assist in relieving future right-of-way costs.

Prior to purchase of right-of-way, final design plans will need to be completed as well as possibly additional environmental analysis to comply with the National Environmental Policy Act (NEPA). Funding sources will be a deterministic factor in the level of effort required prior to the purchase of right-of-way and ultimately project construction.